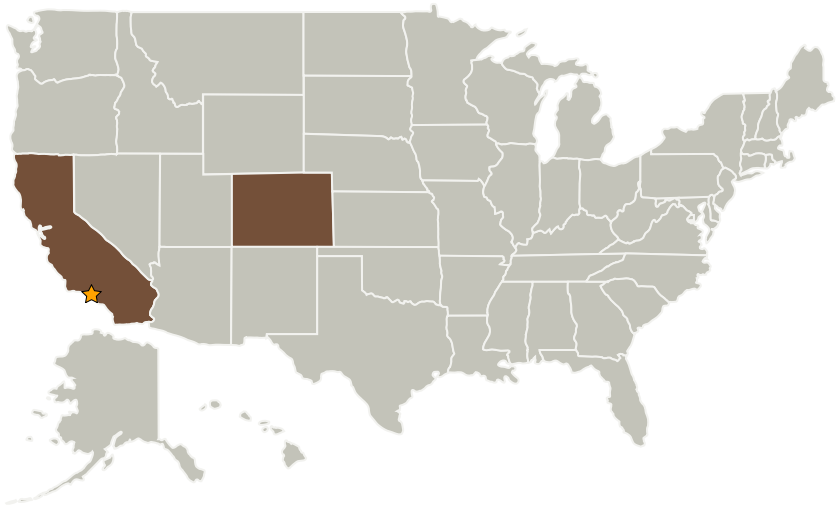
Precision Hinge Actuator for Advanced Telescope Systems, Phase I

Completed Technology Project (2007 - 2007)

Project Introduction

CTD proposes to investigate the deployment repeatability and microdynamic stability of a hinge and demonstration this repeatability in a deployable mirror test article, which incorporates the proposed precision self-locking hinge actuator. If successful, the proposed device will be substantially lighter, simpler, more robust, and more easily controlled than other state-of-the-art actuators for deployment of optical systems. More importantly, the proposed device has the potential of dramatically reducing or eliminating post-deployed microdynamic response, by eliminating mechanical latches. During Phase I, CTD and the University of Colorado (CU) will demonstrate the feasibility of the high-precision, self-locking, linear actuator through testing of a prototype actuator on an existing deployable optics testbed structure at CU. In Phase II, CTD and its partners will develop and test a self-locking linear actuator for application to a flight program of interest to NASA (e.g., Single Aperture Far-IR (SAFIR) telescope).

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Composite Technology Development, Inc.	Supporting Organization	Industry	Lafayette, Colorado

Primary U.S. Work Locations	
California	Colorado

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.4 Tests, Tools and Methods